

PERFORMING A RADIOACTIVE MATERIALS USAGE SURVEY INTERVIEW

Purpose This Meteorology and Air Quality Group procedure (MAQ) describes the process and provides guidance to perform an interview to determine radioactive material usage within a point source that contributes to potential emissions as part of the Rad-NESHAP project.

Scope This procedure applies to the performance of all Radioactive Materials Usage Survey interviews conducted for the Rad-NESHAP Project.

In this procedure This procedure addresses the following major topics:

Topic	See Page
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Who Requires Training to This Procedure?	2
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Hazard Control Plan The hazard evaluation associated with this work is documented in Attachment 1: Initial risk = **low**. Residual risk = **minimal**. Work permits required: none. First authorization review date is one year from group leader signature below; subsequent authorizations are on file in group office.

Signatures	Prepared by: (signed) _____ Richard Sturgeon, MAQ	Date: <u>1/7/04</u>
	Approved by: (signed) _____ Dave Fuehne, Rad-NESHAP Project Leader	Date: <u>1/7/04</u>
	Approved by: (signed) _____ Terry Morgan, QA Officer	Date: <u>1/7/04</u>
	Approved by: (signed) _____ Jean Dewart, MAQ Group Leader	Date: <u>1/7/04</u>

01/08/04

CONTROLLED DOCUMENT

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Users are responsible for ensuring they work to the latest approved revision.

General information about this procedure

Attachments This procedure has the following attachments:

Number	Attachment Title	No. of pages
1	Hazard Control Plan	2
2	Usage Survey Pre-Interview Checklist example	1
3	Radioactive Materials Usage Survey Interview Form example	1
4	Radioactive Materials Usage Survey Process Form example	1

History of revision

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	2/18/98	New document.
1	3/20/98	Minor revision. Title and terminology changes.
2	5/26/99	Process changes.
3	3/31/00	Process changes.
4	10/22/01	Process changes to reflect new database system.
5	2/21/02	Revised step to include adding information to database.
6	1/15/04	Address issues from external assessment in DRs 451, 454, 457, and 458.

Who requires training to this procedure?

The following personnel require training before implementing this procedure:

- MAQ personnel assigned to perform a Radioactive Materials Usage Survey interview
- MAQ personnel assigned to train/educate facility contacts in usage survey processes

Annual retraining is required and will be by self-study (“reading”) training.

Training method

The training method for this procedure is **on-the-job** training by a previously-trained individual or the Rad-NESHAP Project Leader and is documented in accordance with the procedure for training (MAQ-024).

General information, continued

**Definitions
specific to this
procedure**

Point source: A source of air emissions that meets the following criteria:

1. The release point must be stationary,

AND
2. The effluent discharged from the operation or building must be “actively exhausted through a forced ventilation system via a single point” (Federal Facility Compliance Agreement (FFCA)),

AND
3. The operation must have the potential to emit radionuclides “based on the discharge of the effluent stream that would result if all pollution control equipment did not exist, but the facilities operations were otherwise normal” (40 CFR 61.93.b.4.ii).

Potential emissions source: Material that is composed of radioactive material (RAM) or is contaminated with RAM and has the potential to emit all or part of this RAM during normal operations. This includes materials that are used in destructive processes or that are readily dispersible. Examples of destructive processes include activities such as machining, grinding, and dissolving. Examples of readily dispersible materials include transferable contamination, duct holdup and fine particles, liquids, and gases (including activated air) that have no containment or that have containment but do not remain sealed.

Future potential emissions source: Material that does not meet the definition of a “potential emissions source,” but that may meet this definition in the future. For example, a sealed vial of fine particles that is not opened does not meet the definition of a “potential emissions source.” However, if this vial may be opened as part of normal operations in the future, it is considered a “future potential emissions source.”

General information, continued

References

The following documents are referenced in this procedure:

- MAQ-RN, “Quality Assurance Project Plan for the Rad-NESHAP Compliance Project
- MAQ-024, “Personnel Training”
- MAQ-102, “Radioactive Materials Usage Survey for Point Sources”
- MAQ-137, “Evaluating Potential Emissions and Potential Effective Dose Equivalent from Point Sources”
- Memo ESH-17:00-071, “Position Paper On Performing Site Visit Interviews For The Radioactive Materials Survey,” from Richard Sturgeon to Rad-NESHAP files, February 10, 2000.
- Federal Facilities Compliance Agreement
- Title III of the Clean Air Act
- 40 CFR 61, Subpart H

Note

Actions specified within this procedure, unless preceded with “should” or “may,” are to be considered mandatory guidance (i.e., “shall”).

Performing an interview

Radioactive Materials Usage Survey background

As required by 40 CFR 61, Subpart H, LANL must monitor any stack or vent when emissions from the stack or vent have the potential to cause any member of the public to receive a dose greater than 0.1 millirem per year. In order to demonstrate compliance with this aspect of the regulation, the Air Quality Group (MAQ) is required to perform confirmatory measurements of unmonitored point sources to ensure that the potential effective dose equivalent (PEDE) of 0.1 millirem per year is not exceeded. LANL has received permission from the EPA to use the Radioactive Materials Usage Survey to meet this requirement for confirmatory measurements.

Items to address before beginning an interview

At the interviewer's discretion, the following items on the Usage Survey Pre-Interview Checklist (Attachment 2) may be completed prior to interviews. The items to address are listed below:

- Meet with Facility Manager and/or designated Point-of-Contact (POC) to discuss the usage survey process.
 - Recommend a memorandum or e-mail be issued from facility management to facility personnel providing background and purpose of the usage survey.
 - Perform walk-through of building(s) and/or rooms with knowledgeable facility representative.
 - Obtain several copies of the Radioactive Materials Usage Survey Interview Form (Attachment 3) and Radioactive Materials Usage Survey Process Form (Attachment 4).
 - Obtain a facility personnel directory with phone numbers.
 - Obtain a building map (especially if map shows controlled areas).
 - Obtain the previous year's usage survey.
 - Obtain site-specific training or other training required by the facility.
-

Interview methods

Interviews may be conducted via telephone, email, or actual site visit as described in the Position Paper On Performing Site Visit Interviews For The Radioactive Materials Survey (memo ESH-17:00-071).

Special concerns: accidental or off-normal releases

Releases of radioactive material from off-normal or accident considerations must be incorporated into the Usage Survey. Ask each interviewee if there were any such releases during the time period of interest. Document these releases as part of the particular process, or generate a new process if needed.

Performing an interview, continued

Special Concerns: Plutonium usage

To avoid confusion on usage amounts, obtain clarification on the chemical form of any plutonium usage. If an interviewee states that plutonium is being used, ask if it is a special plutonium mixture (e.g., material type-52, -54, or -83).

If a pure plutonium metal is used, ensure that usage amounts are provided by the interviewee in activity units (e.g., microcuries) rather than by mass (e.g., grams).

If the data for the process are based on a radiochemical analysis with specific isotopic breakdown (e.g., stack monitoring), then this concern is irrelevant.

Steps to perform an interview

After completing the Usage Survey Pre-Interview Checklist (Attachment 2), conduct the interview by completing the Radioactive Materials Usage Survey Interview Form (Attachment 3) in conjunction with the Radioactive Materials Usage Survey Process Form (Attachment 4). Perform the following steps:

Step	Action
1	Complete the blocks on the top portion of the Interview Form.
2	Communicate to facility contacts that usage data is for legal compliance and that the quality of the data is paramount. For Tier III sources, we will be requesting peer review by a knowledgeable party (at the facility or within MAQ, as appropriate).
3	For each potential or future potential emissions source, record the stack number (ESID #, if known) and the room number (Room). Use one row for each source.
4	In the Proc # column of the form, record a unique process number (i.e., 1, 2, 3,...) associated with each RAM shown as a "usage" amount. There may be multiple RAM associated with one process, and one RAM may be associated with several processes. Record associated project (i.e., DARHT, Yucca Mountain, etc.) on the Process Form.
5	Under Source Type, record a "P" for potential emissions source or an "F" for future potential emissions sources (see source definitions on page 3).
6	In the RAM column of the form, record the radionuclide (e.g., Cs-137, Pu-239) or type of radioactive material (e.g., depleted uranium, weapons grade-239, mixed fission products).
7	Under Usage, record the total usage/throughput (Ci) of the material. Usage includes all materials that are included in processes, experiments, etc.

Steps continued on next page.

Performing an interview, continued

Step	Action
8	In the Usage Basis column, record the source(s) of documentation for the usage value. The documentation may be a spreadsheet, logbook, user estimate, etc.
9	<p>Under Physical State, record the most conservative physical state that the RAM reaches during normal operations. The choices are gaseous, liquid, particulate, solid, various, or custom. “Various” is <u>only</u> used for source type F when one line item is used to represent several sealed sources.</p> <p>The user may select “custom” when a reduction factor other than the standard reduction factors is appropriate. This may occur in several instances. Some examples include: when historic monitoring data is used and when facility representatives provide additional information regarding recovery rates, emission rates, etc. unique to their process.</p>
10	For each process identified and numbered on the Interview Form, fill out a Process Form. Record each unique process number in the space on the upper left corner of the form. The Process Forms may be used as a “questionnaire” during the interview to obtain specific information on each process.
11	At the bottom of each Process Form, record a written description of the RAM process. Include information regarding destructive operations such as heating and maximum temperature, grinding, polishing, dissolving, etc.
12	In the process form’s “Process Description” block, include information about QA and peer review for all Tier III sources.
13	Enter the interview data into the Microsoft Access usage survey database and give the completed Interview Forms and Process Forms to the MAQ person assigned to perform procedure MAQ-102 and MAQ-137.

Records resulting from this procedure

Records

The following records generated as a result of this procedure are to be submitted as records to the Records Coordinator according to a schedule established by the Records Coordinator.

- Radioactive Materials Usage Survey Interview Form
- Radioactive Materials Usage Survey Process Form
- Usage Survey Pre-Interview Checklist (if appropriate)
- Any documentation associated with radioactive material storage and usage

HAZARD CONTROL PLAN

1. The work to be performed is described in this procedure.

“Performing a Radioactive Materials Usage Survey Interview”

2. Describe potential hazards associated with the work (use continuation page if needed).

Radiological control areas: During the interview process person performing this work may have to enter rad controlled areas.

Chemical splash: During the interview process person performing this work can be in the area while lab processes using chemicals are being performed.

Fall: Ladders and steps used to access ventilation equipment for system verification.

3. For each hazard, list the likelihood and severity, and the resulting initial risk level (before any work controls are applied, as determined according to LIR300-00-01, section 7.2)

Radiological control areas: Remote / Moderate = Minimal

Chemical splash: Remote / Critical = Minimal

Fall: Improbable / Critical = Low

Overall *initial* risk: ☐ Minimal ☒ Low ☐ Medium ☐ High

4. Applicable Laboratory, facility, or activity operational requirements directly related to the work:

☐ None ☒ List:

Work Permits required? ☒ No ☐ List:

Facility/site specific training, Rad Worker I or II

HAZARD CONTROL PLAN, continued

5. Describe how the hazards listed above will be mitigated (e.g., safety equipment, administrative controls, etc.):

Radiological areas and Chemical splash: In performing this work, personnel rarely enter lab areas. Interviews are normally performed in principal investigators office. If a need to enter a lab area arises, the interviewer will be escorted at all times and will follow all lab safety procedures and PPE requirements.

Fall: Personnel awareness of working environment. When using a ladder, ensure proper placement on level ground with a solid footing so the ladder does not shift while supporting the worker. The ladder must be positioned so the worker does not have to over-extend and possibly unbalance the ladder. The worker shall not stand on the top two steps of a ladder.

Radiological areas: Use hand and foot monitors to check for contamination when exiting radiological areas.

6. Knowledge, skills, abilities, and training necessary to safely perform this work (check one or both):



Group-level orientation (per MAQ-032) and training to this procedure.



Other → See training prerequisites on procedure page 3. Any additional describe here:

7. Any wastes and/or residual materials? (check one) ☒ None ☐ List:

8. Considering the administrative and engineering controls to be used, the *residual* risk level (as determined according to LIR300-00-01, section 7.3.3) is (check one):



Minimal



Low



Medium (requires approval by Division Director)

9. Emergency actions to take in event of control failures or abnormal operation (check one):



None



List:

Radiological areas: Contact RCT if contamination is detected.

Chemical splash: Eye wash units, location and how to use.

Fall: First Aid, and call 911

Signature of preparer of this HCP: This HCP was prepared by a knowledgeable individual and reviewed in accordance with requirements in LIR 300-00-01 and LIR 300-00-02.

Preparer(s) signature(s)

Name(s) (print)

/Position

Date

Signature by group leader on procedure title page signifies authorization to perform work for personnel properly trained to this procedure. This authorization will be renewed annually and documented in MAQ records. Controlled copies are considered authorized. Work will be performed to controlled copies only. This plan and procedure will be revised according to MAQ-022 and distributed according to MAQ-030.

USAGE SURVEY PRE-INTERVIEW CHECKLIST

This form is from MAQ-126

TA: _____ Bldg: _____

Date
performed and
initials

Item

Comments or reason for not performing item

	Meet with Facility Manager and/or designated point of contact (POC) to discuss the usage survey process	
	Recommend a memorandum or e-mail be issued from facility management to facility personnel providing background and purpose of the interview	
	Perform walk-through of building(s) and/or rooms with knowledgeable facility representative	
	Obtain several copies of the Radioactive Materials Usage Survey Interview Form (Attachment 2) and the Radioactive Materials Usage Survey Process Form (Attachment 3)	
	Obtain a facility personnel directory with phone numbers	
	Obtain a building map (especially if map shows controlled areas)	
	Obtain the previous year's usage survey	
	Obtain site-specific training or other training required by the facility	

RADIOACTIVE MATERIALS USAGE SURVEY INTERVIEW FORM

Radionuclide Materials Usage Survey Interview Form

Radioactive Materials Usage Survey Interview Form

MAQ Representative: Facility Point of Contact: Position: Mail Stop:

Interview Date: Callback Date: Survey Year: Operating Group: Phone #: Fax #: E-Mail:

TA: Building: FMU: Facility Status: Facility Description: Monitored? ☐ ES ID #: Facility Critical Receptor: mrem/Ci Factors Developed:

ES ID #	Room	Proc #	Source Type	RAM	Usage (Ci)	Usage Basis	Physical state	Reduction Factor	Emission (Ci)	mrem/Ci	PEDE
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Process

Total PEDE (mrem/year) this interview form:

Record: 84 of 84

RADIOACTIVE MATERIALS USAGE SURVEY PROCESS FORM

Radionuclide Materials Usage Survey Process Form

Radioactive Materials Usage Survey Process Form

TA: Building: Room:

Process #:

Process performed in room number(s)

Heating?

Physical state before process:

Physical state during process:

Physical state after process:

Primary Containment:

Associated Project:

Are other personnel performing RAD operations in room? ☐ Yes ☐ No If yes, list names below:

Process Description - WITH identifiers

Process Description - NO identifiers:

Desc
Review
Done
☐

Record: 1 of 1